

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference 497790 GWW	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. PCT/NZ2003/000282	International Filing Date (day/month/year) 22 December 2003	Priority Date (day/month/year) 20 December 2002
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ A47K 3/02, 3/022, 3/12 A61H 33/00		
Applicant KOHLER NZ LIMITED et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheet(s).

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 25 June 2004	Date of completion of the report 17 February 2005
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/NZ2003/000282

I. Basis of the report**1. With regard to the elements of the international application:***

- the international application as originally filed.
- the description, pages , as originally filed,
pages , filed with the demand,
pages 1-7, received on 1 February 2005 with the letter of 1 February 2005
- the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages 8-10 , received on 1 February 2005 with the letter of 1 February 2005
- the drawings, pages 1-6, as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. The amendments have resulted in the cancellation of:

- the description, pages
- the claims, Nos.
- the drawings, sheets/fig.

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/NZ2003/000282

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-19	YES
	Claims	NO
Inventive step (IS)	Claims 1-19	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-19	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)**NOVELTY (N) and INVENTIVE STEP (IS)****A. The closest prior art documents are :**

- (i) US 6256805 B
- (ii) US 20020053105 A

B. The subject matter of claims 1 & 18 differs from these prior art documents in that the recirculation system arranged to recirculate a flow of water from the bath through said upper body water outlets onto the shoulders of a bather or bathers in the bath.

C. The distinguishing features of the invention will provide the bathers with a more luxuriant bathing experience.

D. Therefore the application satisfies the criteria set forth in PCT Article 33(2-3), concerning novelty and inventive step of the independent claims 1.

E. The criteria concerning novelty and inventive step of claims 2-17 & 19 are satisfied because these claims are dependent on claims 1 & 18 respectively.

INDUSTRIAL APPLICABILITY (IA)

The invention defined in claims 1-19 satisfies the criterion set forth in PCT Article 33(4).

A BATH

FIELD OF INVENTION

- 5 The invention comprises an improved form of bath.

BACKGROUND OF THE INVENTION

A standard bath is filled with generally warm water, from taps or a mixer and spout, and
10 is used for bathing.

A spa bath typically incorporates an intake and a number of spa jets positioned in the bath side walls, and piping around the exterior of the bath , through which water is circulated from an intake to the jets in the side walls of the bath by one or more pumps.

- 15 A spa bath provides the bather(s) with a more luxuriant bathing experience.

SUMMARY OF THE INVENTION

- It is an object of the invention to provide an improved or at least alternative form of
20 bath, which further adds to the bathing experience.

In broad terms in one aspect the invention comprises a bath including a water outlet or outlets arranged to in use direct a flow of water onto the upper body of a person or persons sitting in the bath and leaning back against a wall or walls of the bath, and a
25 pump and water recirculation system arranged to recirculate a flow of water from the bath through said upper body water outlets onto the shoulders of a bather or bathers in the bath.

- 30 In broad terms in another aspect the invention comprises a bath including an end wall section which is approximately convexly curved over at least a part of the height of the wall section and which includes a water outlet on one side of the wall section and another water outlet on another side of the wall section, both of which water outlets are

arranged to in use direct a flow of water onto the shoulders and/or neck of a person sitting in the bath leaning against the curved wall section of the bath.

In broad terms in another aspect the invention comprises a bath including an end wall section and upper body water outlets arranged to direct a flow of water from behind onto the shoulders and/or neck of a bather sitting in the bath leaning against the curved wall section of the bath, said upper body water outlet(s) comprising two spaced upper body water outlets one positioned to direct a water flow onto the left-side of a bather and the other positioned to direct a water flow at the same temperature onto the right-side upper body of the bather, said left and right side upper body water outlet fittings being pivotally mounted enabling a bather sitting in the bath to adjust the direction of the water flow from the fittings onto the bathers upper body, each fitting having a hollow interior and a hollow mounting neck by which the fitting is pivotally mounted in an aperture in the top of the bath wall or in a rim around the top of the bath wall.

15 In the bath of the invention, water outlets are provided which are positioned to direct a flow of water, typically warm bath water recirculated by a pump, onto the shoulders of a bather or bathers in the bath. It is generally envisaged that two spaced water outlets will be provided in some form, one positioned so that in use it will direct a water flow onto 20 the left-side upper body of the bather and the other positioned so that it will direct a water flow onto the right-side upper body of the bather. However in an alternative form a single water outlet may for example be arranged to direct a wide flow of water across the neck and shoulders region of a bather, from behind. Instead of being recirculated warm bath water, the water flow may be fresh ie non-recirculated water, which is 25 preferably warmed by a water heater.

A standard (single person) bath may include upper body water outlets at one end of the bath only. A bath designed to accommodate two persons sitting in the bath against opposite ends of the bath may incorporate upper body water outlets at both ends of the 30 bath. A bath designed to accommodate two persons sitting side by side may incorporate side by side upper body water outlets arranged to direct water onto the upper body of both bathers. A spa bath or pool designed to accommodate up to three or more persons

may incorporate upper body water outlets in accordance with the invention at a number of seating positions around the bath or pool. In this specification the term "bath" is intended to also include spa baths and spa pools, including and also known as spas, whirlpools, and jacuzzis.

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Typically the upper body water outlets will be positioned in a junction portion of the bath which joins a wall section of the bath which defines the bath cavity, with a surrounding rim section around the bath cavity. Where two spaced upper body water outlets are provided to direct water flows on to the left and right-sides of a bather or 10 bathers, typically the junction portion between the bath wall section and surrounding rim section will between the upper body water outlets be a smooth joining portion shaped so that it is comfortable for the neck or head of a bather to rest against. Alternatively or additionally the bath may incorporate a pillow formed of a compressible material such as synthetic foam which is positioned between the upper 15 body water outlets to give added comfort to a bather. In a further form of the invention the upper body water outlets may be integral with such a pillow as will be further described. In another form of the invention the upper body water outlets may be positioned on the generally horizontal rim section around the bath cavity or in recesses in such a rim section. The outlets maybe arranged to direct an arching and preferably 20 laminar flow of water onto the upper body or bodies of a bather or bathers.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is further illustrated by the following description of embodiments of 25 baths of the invention, which are described by way of example and without intending to be limiting. In the drawings:

Figure 1 is a view from above showing one form bath of the invention, with a user therein,

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Figure 2 is a view from above one end of the bath of Figure 1 when empty,

Figures 3A and 3B are close up views of the upper body water outlets of the bath of Figure 1 positioned on either side of a neck pillow,

Figure 4 is a view from above of one of the pivotable upper body water outlets of the bath of Figures 1 to 3,

5 Figure 5 is a view of the upper body water outlet of Figure 4 from one end,

10 Figure 6 is a cross-section view of the upper body water outlet of Figure 4 along line A-A of Figure 3,

Figure 7 shows another form of bath of the invention in which upper body water outlets are integral with a neck-pillow,

15 Figure 8 shows a bath of the invention with upper body water outlets mounted in a surrounding rim section of the bath,

20 Figure 9 shows a bath in which a single fitting around a curved end wall of a bath provides upper body water outlets which direct a wide flow of water onto the shoulders and neck of a bather, and

Figure 10 shows a bath of the invention similar to that of Figure 9 in which a single fitting around a curved end wall of a bath provides upper body water outlets and also supports a neck pillow

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DETAILED DESCRIPTION OF PREFERRED FORMS

Referring to Figures 1 to 3, the bath shown therein is a spa bath and incorporates a suction inlet from which water is drawn and a number of spa outlets or jets from which water is pumped back into the bath. The bath has one or more wall sections 1 which are shaped so as to be comfortable for bathers sitting in the bath and leaning back against

the wall of the bath. The bath may include water outlets 2 in the curved wall sections 1 as shown in Figure 2 which direct water against the back of the bather.

At the top of wall sections 1 is optionally provided a pillow 3 which is moulded from a synthetic foam material, and on either side of the pillow are mounted left and right upper body water fittings 4 including outlets 5, which are also connected to the spa pump or pumps so that they will in use direct a flow of water onto the upper body of a bather sitting in the bath, on both the left and right sides as shown in Figure 1. Preferably the fittings 4 provide water outlets 5 which are elongate in shape as shown so that the flow of water from each outlet 5 is wider than it is deep, or laminar, so that when the water flows impact the shoulder and/or neck regions of a bather they will cover and warm as much of the bathers upper body exposed above the water in the bath, as possible. Alternatively however the outlets 5 may comprise a number of smaller elongate or circular outlets for example.

In the bath shown in Figures 1 to 3 the upper body water fittings 4 can pivot in the direction of arrows P and/or Q (if both, then through an approximate quadrant arc) as shown in Figures 3A and 3B, which enables a bather sitting in the bath to perfect the aim of the water flow onto the bathers upper body.

Figures 4 to 6 show a single fitting 4. The fitting which has a hollow interior also has a hollow mounting neck 6 which is in turn carried in a tubular collar 7 fixed in an aperture in the bath wall, so that a user can pivot the fitting 4 by pushing or pulling the top of the fitting, causing the fitting to rotate in the tubular collar 7. A pipe (not shown) from the water pump of the bath or alternatively a separate pump, connects to the lower end 8 of the tubular collar 7 and O-rings at 9 and 10 seal between the mounting neck 6 and the tubular collar 7.

In an alternative form upper body water outlet fittings similar to those shown in Figures 1-6 may be fixed rather than having the ability to be pivoted by a bather as described. Such fixed fittings may be formed separately from the bath wall or alternatively may be

formed as integral shaped moulded portions of the bath wall and/or rim section around the top of the bath wall.

Figure 7 shows another form of bath of the invention in which neck-shoulder water outlets 5 are integral with a neck-pillow 3. The neck pillow may be of any desired shape. Apertures through a removable moulded foam pillow may align with water outlets through the wall or horizontal rim of the bath. Optionally the neck pillow including the water outlet apertures 5 may be covered with an open weave material such as a LYCRA™ material which will at least partially conceal the water outlets 5 without significantly interrupting the water flow in use. In another form pivotable neck-shoulder water outlets 5 as in the bath of Figures 1 to 3 may comprise flexible wings or ears of a pillow by being over-moulded with moulded foam material from which the pillow 3 is formed. Alternatively the pivotable neck-shoulder water outlets 5 as in Figures 1 to 3 may be non-integral with the pillow 3 ie separate components, but still be over-moulded or covered with a softer synthetic material

Figure 8 shows a bath of the invention with neck-shoulder water outlets 5 mounted in an upper rim section of the bath. The outlets 5 are again positioned so that they will in use direct a flow of water on to the upper body of person sitting in a bath leaning against the curved wall section 1 of the bath.

Figure 9 shows a bath of the invention in which a single tubular fitting 7 around curved end wall 1 of the bath provides neck-water outlets 5 as shown. The tubular fitting may be a chromed fitting for example. It may be mounted to the upper rim section of the bath by short upright tubes 8 through which water is supplied to the interior of the tube 7. The outlets 5 in the tube 7 may comprise a series of slot outlets around approximately the full length of the tube 7, or slot outlets on either side only, or the outlets may be formed as a series of non-slot shaped apertures.

Figure 10 shows a bath similar to that of Figure 9 in which a similar curved fitting around the upper rim section of the bath also supports a moulded foam pillow 3, and

provides neck-shoulder water outlets 5 which direct a laminar flow of water onto the shoulder regions and also neck of a bather.

The foregoing describes the invention including a preferred forms thereof. Alterations and modifications as will be obvious to those skilled in the art are intended to be incorporated in the scope hereof.

CLAIMS:

1. A bath including a water outlet or outlets arranged to in use direct a flow of water from behind onto the upper body of a bather or bathers sitting in the bath and leaning back against the wall of the bath, and a pump and water recirculation system arranged to recirculate a flow of water from the bath through said upper body water outlets onto the shoulders of a bather or bathers in the bath.
2. A bath according to claim 1 wherein said upper body water outlet(s) comprise two spaced water outlets one positioned to direct a water flow onto the left-side upper body of a bather and the other positioned to direct a water flow at the same temperature onto the right-side upper body of the bather.
3. A bath according to either of claims 1 and 2 wherein the upper body water outlets are elongate in shape to deliver a flow of water from each outlet which is wider than it is deep.
4. A bath including an end wall section which is approximately convexly curved over at least a part of the height of the wall section and which includes an upper body water outlet or outlets arranged to direct a flow of water from behind onto the shoulders and/or neck of a bather sitting in the bath leaning against the curved wall section of the bath.
5. A bath according to claim 4 including a pump and water recirculation system arranged to recirculate a flow of water from the bath through said upper body water outlets onto the shoulders of a bather or bathers in the bath.
6. A bath according to either of claims 4 and 5 wherein said upper body water outlet(s) comprise two spaced upper body water outlets one positioned to direct a water flow onto the left-side of a bather and the other positioned to direct a water flow at the same temperature onto the right-side upper body of the bather.

7. A bath according to claim 6 wherein said left and right side upper body water outlet fittings are provided on either side of a central pillow for a bather.
8. A bath according to either one of claims 4 and 5 comprising a single said upper body water outlet arranged to direct a wide flow of water across the neck and shoulders region of a bather.
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9. A bath according to any one of claims 4 to 8 including left and right side upper body water outlet fittings which are pivotally mounted enabling a bather sitting in the bath to adjust the direction of the water flow from the fittings onto the bathers upper body.
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10. A bath according to claim 9 wherein each fitting has a hollow interior and a hollow mounting neck by which the fitting is pivotally mounted is in turn carried in an aperture in the bath wall or a rim around the top of the bath wall.
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11. A bath according to any one of claims 4 to 6 wherein the upper body water outlet fittings are formed as integral shaped moulded portions of the bath wall and/or rim section around the top of the bath wall.
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12. A bath according to any one of claims 4 to 6 wherein the upper body water outlet fittings are integral with a pillow associated with the bath wall and/or a rim section around the top of the bath wall.
- 25 13. A bath according to claim 12 wherein the upper body water outlet comprise flexible side portions of said pillow.
14. A bath according to either one of claims 4 and 5 wherein the upper body water outlet(s) are provided in a single hollow fitting extending along an upper portion of the bath wall or along a rim section at the top of the bath wall.
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15. A bath according to claim 14 wherein said single hollow fitting also supports a pillow.
16. A bath according to any one of claims 4 to 15 which also includes a suction inlet from which water is drawn and a number of spa outlets or jets in the walls of the bath through which water is recirculated back into the bath.
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17. A bath according to claim 16 wherein one or more of said spa outlets or jets are provided in said convexly curved wall section of the bath to direct water against the back of the bather.
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18. A bath according to any one of claims 4 to 17 wherein the upper body water outlets are elongate in shape for delivering a flow of water from each outlet which is wider than it is deep.
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18. A bath including an end wall section and upper body water outlets arranged to direct a flow of water from behind onto the shoulders and/or neck of a bather reclining against a wall section of the bath, said upper body water outlet(s) comprising two spaced upper body water outlets one positioned to direct a water flow onto the left-side of a bather and the other positioned to direct a water flow at the same temperature onto the right-side upper body of the bather, said left and right side upper body water outlet fittings being pivotally mounted enabling the bather to adjust the direction of the water flow from the fittings onto the bathers upper body, each fitting having a hollow interior and a hollow mounting neck by which the fitting is pivotally mounted in an aperture in the top of the bath wall or in a rim around the top of the bath wall.
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19. A bath according to claim 19 wherein said left and right side upper body water outlet fittings are provided on either side of a central pillow for a bather.
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